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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,936	12/18/2001	Joel Wayne Davenport	US018102	6760

7590

03/20/2003

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EXAMINER

CRUZ, LOURDES C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/024,936

Applicant(s)

DAVENPORT ET AL.

Examiner

Lourdes C. Cruz

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 8-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 13-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-7 and 13-17, drawn to a semiconductor device, classified in class 257, subclass 725.
- II. Claims 8-12, drawn to a method of making a semiconductor device, classified in class 438, subclass 1+.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the device as claimed could be made by selectively depositing the undesired electrical contacts such that removing them in order to create the space gaps becomes unnecessary.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Schmitt on 3-16-03 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7 and 13-17. Applicant in replying to this Office action must make affirmation of this

election. Claims 8-12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

All Figures are improperly crosshatched. All of the cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. Also see 35 CFR 184 (h)(3) and MPEP 608.02.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:  
16. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-5 and 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3,5, and 15 recite a standard that is indefinite since the defined standard is subject to change in the future.

Claims 4,13 recite a plurality of layers. See that there is a comma missing between "ground layer" and "bottom layer". This makes the claim indefinite since it becomes unclear whether the both layers are in the same layer or if they are separate layers. For this action the examiner assumes they are separate layers.

Claim 13 recites, "a plurality sets". The scope of this phrase is unclear to the examiner. For this action the examiner assumes it introduces a plurality of sets and not a product by process step. The claim also recites, "to be mounted". Is the device mounted on the package or not? For this action the examiner assumes it is.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,6,7 and 13,14,16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Koepf (US5138436).

Koepf discloses a BGA package (see cover figure) having a plurality of external connection contacts (on 28/on 15) comprising:

A first device 18 having a plurality of electrical connections connected to a first set of the external electrical connection contacts; and a second device (any other shown adjacent device/unlabeled) having a plurality of electrical connections to a second set of the external contacts (see correspondence); wherein the first and second sets of the external electrical connections are segregated in two sections which are electrically isolated from each other (see col. 7, 50-60 and col. 8, 45+).

Koeopf also discloses a BGA package wherein:

- The two sections are separated by spacing gaps (see recess 16) with a predetermined standard
- A plurality of layers, including a signal layer 30, power layer 24, ground layer 14, and a bottom layer 13; wherein each of the layers includes to sets of electrical connections (see there is at least two devices) that are segregated in two sections which are electrically isolated from each other, and the two sets of electrical connections are respectively connected to the first and second devices
- IC devices
- Regarding claims 7 and 17 see that the prior art teaches all the structure above. However, see that the claims recite Intended Use limitations that do not patentably distinguish the claimed device from that disclosed by the prior art.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koepf.

Although Koepf is silent about the use of ANSI standards, they are known in the art and used among semiconductor artisans. Also, see that since the standard is known, it appears it is not the invention of the applicant.

Moreover:

See that the distance of the segregation according to a predetermined standard as claimed does not cause any critical or unexpected results to the device's operation. Rather it is merely an obvious design choice determined by routine experimentation. In *Aller*, the court stated "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456 105 USPQ 233,235 (CCPA 1995).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the sections and to segregate them in accordance to a set standard in order to provide a segregation that gives a working device and conforms to a set standard; in order to provide appropriate isolation between device contacts.

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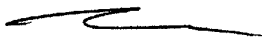
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lourdes C. Cruz whose telephone number is 703-306-5691. The examiner can normally be reached on M-F 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Lourdes C. Cruz  
Examiner  
Art Unit 2827



Lourdes Cruz  
March 18, 2003



**JEROME JACKSON**  
**PRIMARY EXAMINER**